

Application No.: 09/990,992

Docket No.: JCLA8137

REMARKS**Present Status of Application**

Claims 1-16 remain pending in the application. The Office Action mailed December 01, 2003, objected the drawings for not showing every feature specified in the claims. Claims 1-2, 4-7, 9-14 and 16 were rejected under 35 USC§103(a) as being unpatentable over Taylor (US Patent No. 5,301,679) in view of Kuo et al. (Effect of aging on gender difference in Neural control of Heart, publication). Claims 3, 8 and 15 were rejected under 35 USC§103(a) as being unpatentable over Taylor in view of Kuo et al., and further in view of Eisenburg et. al. (US Patent No. 4,792,145), Johnson et al. (US Patent No. 5,025,809), Tsuji et al. (Reduced heart rate variability and mortality risk in an elderly cohort).

Claims 1, 4 and 8 have been amended and claims 6-7 and 9-16 have been cancelled, while new claims 17-19 have been added. No new matter has been added to the application by the amendments made to the specification, claims and drawings. This Amendment is promptly filed to place the above-captioned case in condition for allowance. After entering the amendments, a notice of allowance is respectfully solicited.

Discussion for objections

The drawings were objected under 37 CFR 1.83(a) for failing to show every feature of the invention specified in the claims, including the hearing instrument, the personal computer, PDA and the microchip.

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In response thereto, applicants have carefully revised the drawing figures, to ensure that these features have been incorporated and specified in the drawings as suggested by the Office Action. Submitted for the Examiner's approval are the proposed drawings (Fig. 2). Supporting grounds of the amendments of the drawings can be found in the paragraphs [0024]-[0025] of the specification and claims.

Reconsideration and withdrawal of this objection are respectfully requested.

Discussion for 35 USC§103 rejections

Claims 1-2, 4-7, 9-14 and 16 were rejected under 35 USC§103(a) as being unpatentable over Taylor (US Patent No. 5,301,679) in view of Kuo et al. (Effect of aging on gender difference in Neural control of Heart, publication). Claims 3, 8 and 15 were rejected under 35 USC§103(a) as being unpatentable over Taylor in view of Kuo et al., and further in view of Eisenburg et. al. (US Patent No. 4,792,145), Johnson et al. (US Patent No. 5,025,809), Tsuji et al. (Reduced heart rate variability and mortality risk in an elderly cohort).

The Applicant has carefully considered the remarks set forth in the Office Action. Claims 1, 4 and 8 have been amended to more clearly define the apparatus according to the present invention, while claims 9-16 have been cancelled. The supporting grounds for this amendment can be found in paragraphs [0025]-[0027] of the specification. As amended, independent claim 1 clearly recites:

*Claim 1. An apparatus to measure a heart rate variability (HRV), comprising:
a listening instrument to collect sound signals of a heart, wherein high frequency sounds and low frequency vibrations are transformed into electrical signals; and
a computing system to analyze the electrical signals of the sound signals of the heart, wherein the computing system comprises a digital signal processing unit to estimate a beat-to-beat interval of a*

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heart beat from the electrical signals, to transform interval values into a frequency spectrum and to perform frequency-domain analysis, time-domain analysis and non-linear analysis to the electrical signals, and wherein frequency-domain parameters of the electrical signals are quantified to characterize the heart rate variability.

Applicants submit that claim 1 patently defines over the prior references for at least the reason that the cited art fails to disclose at least the features emphasized above.

As noted by the Office Action, Taylor does not disclose analysis of the HRV value. The Office Action relied on Kuo for teaching the lacking feature.

Applicant respectfully traverses this rejection.

Taylor merely provides general guidance for measuring the body sounds by using microphones and analyzing the body sounds for disease evaluation. Because Taylor's teachings is only general guidance and insufficient to provide the necessary modification or suggestion, Taylor, even at best, just provides "invitation to explore". As stated by the Board "At best, the Dean statement is but an invitation to scientists to explore a new technology that seems a promising field of experimentation. The Dean statement is of the type that gives only general guidance and is not at all specific as to the particular form of the claimed invention and how to achieve it. Such a suggestion may make an approach "obvious to try" but it does not make the invention obvious." *Ex parte Obukowicz*, 27 USPQ 2d 1063(B.P.A.I. 1992).

In fact, Taylor only considers collecting the body sounds and analyzing the phonocardiography, but provides no teachings at all relating to using ECG signals. However, the Kuo reference discloses a method of analyzing ECG heart data. Even though both the body sound analysis and the ECG data analysis can be applied for evaluating or monitoring the subject's

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physiological states, no sufficient suggestion or modification is found in both references or provided by the Office Action, for applying the HRV parameter analysis to Taylor's device. This suggested modification from the Office action, which would require a substantial reconstruction or redesign of the references, is thus not obvious.

As a result, Applicant submits that amended independent claim 1 patently defines over the cited reference. Regarding the rejection under 35 USC 103(a), the Applicants submit that dependent claims be patentably distinguishable over the cited references for at least the same reasons as the independent claim 1, from which these claims respectively depend, as well as for the additional features that these claims recite.

In view of the above amendment and discussions, reconsideration and withdrawal of the 103 rejections are respectfully requested.

New Claims 17-19 are added to further define the present invention. These claims are believed allowable and such allowance is respectfully requested.

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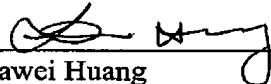
CONCLUSION

In view of the foregoing, it is believed that all pending claims are in proper condition for allowance. If the Examiner believes that a telephone conference would expedite the examination of the above-identified patent application, the Examiner is invited to call the undersigned.

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